Appendix D

Traffic Projection Methodology Memorandum

Kimley-Horn
and Associates, Inc.

Memorandum

Suite 500
4500 Main Street
Virginia Beach, Virginia
23462

To: Ellen Cook, AICP
James City County

From: Carroll E. Collins, AICP
Whitney A. Sokolowski
Kimley-Horn and Associates, Inc.

Date: January 17, 2014

Subject: Longhill Road Corridor Study Traffic Projection Methodology Memorandum
KHA Project #116085034

Background

In order to establish 2034 horizon year traffic volume projections within the study area, several growth and development factors were taken into consideration. Anticipated future traffic volumes and planned land developments within the study area were established through conversations with James City County Planning staff and VDOT. For purposes of this study, existing traffic patterns/travel behaviors were assumed to remain constant through 2034 under both no-build and build conditions. Although travelers along the corridor will likely experience overall improved operational conditions through the introduction of additional capacity (i.e., roadway widening from 2 to 4 lanes, turn-lane improvements at intersections, and improved signal coordination) it is expected that travel patterns will not change.

Longhill Road is a key link in the County's roadway network system serving commuters that live and work within the study area as well as those that travel through the corridor. However, an alternative route or connection to the corridor is not being proposed that would result in a change in travel patterns from those that exist today.

The need for Longhill Road corridor improvements is based on several key components; traffic operations, safety, and mobility. At the forefront is the volume of traffic the roadway accommodates today. Existing daily traffic volumes are beginning to reach or exceed the ideal operational capacity of the roadway, intersections, and segments of the corridor are characterized by deteriorating traffic operations under peak hour conditions. In addition to existing conditions, it is recognized that approved or planned development within the corridor as well as expected growth in the general vicinity of the study area will result in increased traffic volumes and additional demand on the roadway network. With traffic volumes expected to increase over time, the need for improvements is further confirmed. Factors expected to influence future volumes as well as methodology used to development these traffic volume projections are discussed in detail in the following sections.

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Growth Rate Development Data Resources

To determine 2034 horizon year traffic volumes, annualized background growth rates were established for Longhill Road, a segment of Olde Towne Road, and a segment of Centerville Road. In order to more accurately determine the 2034 traffic volumes, a comparison was conducted between several industry standard resources. Resources used in the development of the annualized growth rates include the following:

1) Historical VDOT Annual Average Daily Traffic (AADT) volume estimates,
2) Data obtained from the 2009 Base Year and 2034 Horizon Year Hampton Roads Regional Travel Demand Models (TDM):
    a. Traffic volume projections
    b. Transportation Analysis Zones (TAZ) socio-economic data (e.g., Population, Households, Total Employment, Retail Employment, Non-Retail Employment)
3) Data associated with approved and/or anticipated developments within the study area.
4) James City County staff provided TAZ socio-economic data recently provided to the Hampton Roads Transportation Planning Organization (HRTPO) for the development of the 2040 Hampton Roads TDM (e.g., Population, Households, Total Employment, Retail Employment, Non-Retail Employment).

Historical VDOT Annual Average Daily Traffic Volume Estimates

Based on historical data from VDOT's daily traffic volume estimates, annual growth rates were calculated for the study corridor to serve as one source of data to assist in the development of future mainline traffic volume projections. Annual average daily (AADT) traffic volumes were compiled from 2001 to 2004 and from 2009 to 2012 for Longhill Road between Centerville Road (State Route 614) and Ironbound Road (State Route 615) to identify historical traffic volume trends along the study area corridor. Because of the recession and decreased economic growth, the years of 2005 through 2008 were excluded from the comparison to decrease the likelihood of outliers or atypical growth patterns within the data. **Table 1** shows the calculated annual growth rates for Longhill Road based on the VDOT historical traffic data.

Table 1: VDOT Historical Annual Average Growth Rate

Route	Segment	Annual Growth Rate (2001-2004)	Annual Growth Rate (2009-2012)
Longhill Road (Route 612)	Centerville Road (State Route 614) to Warhill Trail (State Route 830)	+7.68%	+0.03%
	Warhill Trail (Route 830) to Ironbound Road (Route 615)	+2.52%	-1.96%

Hampton Roads Regional Travel Demand Model

Projected daily volumes from the 2009 base year and 2034 horizon year of the HRTPO TDM were also compared in order to determine the anticipated annualized growth rates within the study area. The future volumes were taken from multiple model links that comprise the roadways within the study area.

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Table 2 shows the compared model links as well as the 2009 and 2034 daily traffic volume assignment, the percent change between model assignment years, and the average percentage change along select corridor segments.

The practice of using of the regional travel demand model to extrapolate and establish annualized growth rates is consistent with that process outlined in *NCHRP 255 – Highway Traffic Data for Urbanized Area Project Planning and Design.* The model takes into account existing capacity (laneage) (i.e., from the base year model), future roadway improvements (in the future year model), and anticipated changes in socio-economic data, which translates into trip generation (i.e., traffic volumes), as it relates to growth within the corridor study area and within the region.

Table 2: Travel Demand Model Traffic Projections

Segment	Link Start Node Number	Link End Node Number	2009 ADT	2034 ADT	Percent Change	Average Percent Change
Longhill Road						
Centerville Road (Route 615) to Warhill Trail (Route 830)	19380	19381	4,142	6,555	+2.33%	+1.60%
	19381	19368	8,122	11,006	+1.42%	
	19360	19363	8,122	11,006	+1.42%	
	19365	19373	8,122	11,006	+1.42%	
	19373	19376	8,122	11,006	+1.42%	
Warhill Trail to Olde Towne Road (Route 658)	19362	19358	21,768	24,912	+0.58%	+0.58%
	19350	19349	21,768	24,912	+0.58%	
Olde Towne Road to Williamsburg West Drive	19348	19347	21,768	24,912	+0.58%	+0.55%
	19347	19346	21,768	24,912	+0.58%	
	19346	19345	22,187	24,912	+0.49%	
	19345	19341	21,757	24,664	+0.53%	
Williamsburg West Drive to Route 199 Interchange	19341	19338	21,757	26,191	+0.82%	+0.82%
	19338	19337	21,757	26,191	+0.82%	
	19337	19335	21,757	26,191	+0.82%	
Route 199 Interchange Ramps	19335	19331	21,757	26,190	+0.82%	+1.57%
	19331	19328	19,180	25,945	+1.41%	
	19328	19327	19,153	27,777	+1.80%	
	19327	19322	18,239	26,947	+1.91%	
	19322	19321	18,239	26,947	+1.91%	
Olde Towne Road						
All	19347	19351	12,451	12,855	+0.13%	+0.13%
Centerville Road						
All	19388	19380	5,005	8,287	+2.62%	+2.04%
	19374	19380	2,739	3,732	+1.45%	

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In addition to the historical volume data and future projection model volumes, the County provided socio-economic data (i.e., population, households, total employment, retail employment, industrial employment, office employment, and other employment) for the study area transportation analysis zones. Data was provided for the 2009 base year, the current 2034 model horizon year, and the 2040 horizon year.

It is noted that the 2040 socio-economic data were available as a result of the County recently preparing updated projections for use in the development of the 2040 Hampton Roads TDM and ultimately the 2040 Hampton Roads Long Range Transportation Plan. The study area is currently located within the boundaries of the following James City County TAZ's: 1327, 1328, 1339, and 1341 as shown in **Figure 1**. From these TAZ's, the raw change and annual growth rate between 2009 and 2040 were calculated for each type of socio-economic data to determine the projected future traffic volumes as shown in **Table 3** and **Table 4**.

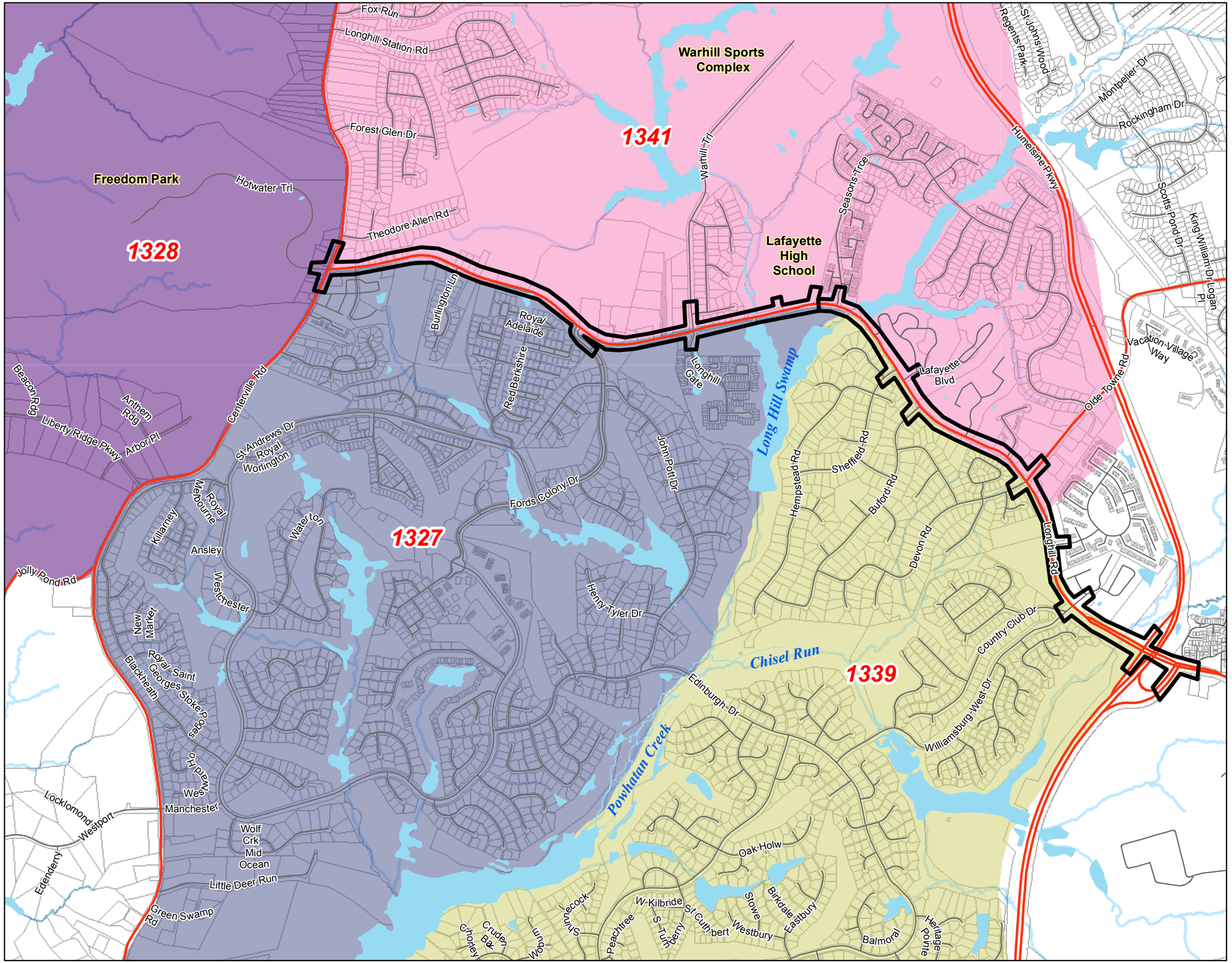
Table 3: James City County Traffic Analysis Zone Socio-Economic Data (Population and Households)

TAZ Data (2009 - 2040)	Population		Residential Households	
	Raw Change	Annual Growth Rate	Raw Change	Annual Growth Rate
TAZ 1327	+1,956	+1.60%	+852	+1.54%
TAZ 1328	+844	+4.97%	+307	+4.90%
TAZ 1339	+2,996	+1.61%	+1,331	+1.91%
TAZ 1341	-492	-0.40%	-223	-0.45%
Total	**+5,304**	**+1.45%**	**+2,267**	**+1.54%**

Table 4: James City County Traffic Analysis Zone Socio-Economic Data (Employment)

TAZ Data (2009 - 2040)	Retail Employment		Industrial Employment		Office Employment		Other Employment		Total Employment	
	Raw Change	Annual Growth Rate	Raw Change	Annual Growth Rate	Raw Change	Annual Growth Rate	Raw Change	Annual Growth Rate	Raw Change	Annual Growth Rate
TAZ 1327	-53	-1.61%	-51	-7.50%	+568	+3.52%	+26	+0.22%	+490	+1.47%
TAZ 1328	+13	0.00%	-19	-0.69%	+110	+5.19%	+138	+6.61%	+242	+3.14%
TAZ 1339	-347	-1.27%	0	0.00%	+779	+4.81%	+449	+4.86%	+881	+1.49%
TAZ 1341	-53	-0.55%	-204	-4.00%	+353	+1.19%	+151	+0.56%	+248	+0.34%
Total	**-439**	**-1.35%**	**-274**	**-2.91%**	**+1,810**	**+3.44%**	**+764**	**+1.83%**	**+1,862**	**+1.33%**

Figure 1: Traffic Analysis Zone Map



Project Study Area
Primary Roadways
Secondary Roadways
Water/Marsh
Parcel Boundary

0 500 1,000 2,000 Feet

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Coordinate System: NAD 1983 StatePlane Virginia South FIPS 450 Feet

Data Source: James City County

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Planned or Approved Land Development

In addition to TAZ socio-economic data, anticipated and approved developments were also included to comprehensively project future traffic volumes as well as identification of undeveloped acreage within the study area. Anticipated and approved developments within the study area were identified during discussions with the James City County and VDOT staff. The following commercial and recreational developments were added to the background growth to develop the 2034 future volumes:

- Christian Life Center Expansion
- King of Glory Expansion
- Williamsburg Business Center Expansion
- Freedom Park Expansion
- Warhill Sports Complex Expansion

Table 5 displays the anticipated land uses within each of the identified commercial and recreational developments.

Table 5: Anticipated Developments

Development	Use	Proposed Units
Christian Life Center Expansion*	Education	+ 25,000 SF
	Day Care	
King of Glory Expansion	Sanctuary	+ 184 Seats
	Office	+ 9 Employees
	Day Care	+ 3 Students
Williamsburg Business Center Expansion	Office	+ 78,400 SF
Freedom Park Expansion**	Recreation	-
Warhill Sports Complex Expansion	Recreation	6 Baseball/Softball Fields 1 Football Field 12 Multi-Purpose Fields 1 Multi-Use Trail

** These will only be conducted during church service hours; therefore, additional traffic generated from this expansion will occur during off-peak hours.*

***As determined by the County Parks and Recreation staff, any new future attractions at Freedom Park will result in a minimal number of new trips being generated to/from this site during the peak hours.*

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Similarly, approved but unbuilt residential developments were also considered in formulating the annualized growth rates and subsequent 2034 traffic volumes projections. The following approved but undeveloped residential units were identified during discussions with the James City County staff:

- Burlington Woods
- Ford's Colony
- Season's Trace
- Windsor Forest
- Williamsburg West

TAZ 1327 encompasses the area south of Longhill Road from Centerville Road to the Longhill Swamp. Within this TAZ, the existing and future major land use generators include but are not limited to the Christian Life Center, Burlington Woods neighborhood, and Ford's Colony neighborhood. However, the planned developments will be divided equally between TAZ 1327 and TAZ 1339 due to their location and adjacent roadway facilities. **Table 6** shows the comparison of the County's projected socio-economic data and the anticipated developments.

Table 6: TAZ 1327 Data Comparison

Development	Land Use				
	Residential Households	Retail Employment	Industrial Employment	Office Employment	Other Employment
TAZ 1327 Data (2009-2040)	+852	-53	-51	+568	+26
Subtotal	***+852***	***-53***	***-51***	***+568***	***+26***
Christian Life Center Expansion	-	-	-	-	-
Burlington Woods	+11	-	-	-	-
Ford's Colony (50% of Housing)	+269	-	-	-	-
Parcel 3130100031 (Residential)	+4	-	-	-	-
Parcel 3130100021 (Residential)	+4	-	-	-	-
Parcel 3140100013 (Residential)	+3	-	-	-	-
Parcel 3210100012 (County)	-				
Subtotal	***+280***	-	-	-	-
Difference	+572	-53	-51	+568	+26

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TAZ **1328** encompasses the area west of Centerville Road surrounded by Jolly Pond Road. Within this TAZ, the existing and future major land use generator is Freedom Park. **Table 7** shows the comparison of the County's projected socio-economic data and the anticipated developments.

Table 7: TAZ 1328 Data Comparison

Development	Land Use				
	Residential Households	Retail Employment	Industrial Employment	Office Employment	Other Employment
TAZ 1328 Data (2009-2040)	+307	+13	-19	+110	+138
Subtotal	***+307***	***+13***	***-19***	***+110***	***+138***
Parcel 3130100007 (Residential)	+4	-	-	-	-
Subtotal	***+4***	-	-	-	-
Difference	+303	+13	-19	+110	+138

TAZ **1339** encompasses the area south of Longhill Road between Longhill Swamp and Route 199. Within this TAZ, the existing and future major land use generators include but are not limited to the King of Glory Church and the Williamsburg West neighborhood. **Table 8** shows the comparison of the County's projected socio-economic data and the anticipated developments.

Table 8: TAZ 1339 Data Comparison

Development	Land Use				
	Residential Households	Retail Employment	Industrial Employment	Office Employment	Other Employment
TAZ 1339 Data (2009-2040)	+1,331	-347	0	+779	+449
Subtotal	***+1,331***	***-347***	***0***	***+779***	***+449***
King of Glory Expansion	-	-	-	+9	-
Williamsburg West	+3	-	-	-	-
Ford's Colony (50% of Housing)	+270	-	-	-	-
Windsor Forest	+17	-	-	-	-
Subtotal	***+290***	-	-	***+9***	-
Difference	+1,041	-347	0	+770	+449

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TAZ **1341** encompasses the area north of Longhill Road between Centerville Road and Route 199. Within this TAZ, the existing and future major land use generators include but are not limited to the Warhill Sports Complex, Season's Trace neighborhood, and Williamsburg Business Center. **Table 9** shows the comparison of the County's projected socio-economic data and the anticipated developments.

Table 9: TAZ 1341 Data Comparison

Development	Land Use				
	Residential Households	Retail Employment	Industrial Employment	Office Employment	Other Employment
TAZ 1341 Data (2009-2040)	-223	-53	-204	+353	+151
Subtotal	***-223***	***-53***	***-204***	***+353***	***+151***
Warhill Sports Complex Expansion	-	-	-	-	-
Williamsburg Business Center Expansion	-	-	-	+392	-
Season's Trace	+24	-	-	-	-
Parcel 3130200029 (Residential)	+14	-	-	-	-
Parcel 3140100001 (Residential)	+5	-	-	-	-
Parcel 3230100002 (Residential)	+11	-	-	-	-
Parcel 3240100029 (Neighborhood Commercial)	-	+ 20	-	-	+ 20
Parcel 3130100029 (Residential)	+44	-	-	-	-
Parcel 3120100017 (Residential)	+24	-	-	-	-
Subtotal	+189	-	-	+392	-
Difference	-34	-33	-204	-39	+171

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From the comparison of the historical traffic volumes, 2009 and 2034 projected traffic volumes, socio-economic data, and anticipated developments, **Table 10** summarizes the growth rates proposed for use in the development of future traffic projections for the Longhill Road corridor the study area.

Table 10: Proposed Annualized Growth Rates

Route	Segment	Annual Growth Rate
Longhill Road (Route 612)	Centerville Road (Route 614) to Warhill Trail (Route 830)	2.00%
	Warhill Trail to Olde Towne Road (Route 658)	1.00%
	Olde Towne Road to Williamsburg West Drive	1.00%
	Williamsburg West Drive to Route 199 Interchange	1.00%
	Route 199 Interchange Ramps	1.50%
Olde Towne Road (Route 658)	All	1.00%
Centerville Road (Route 614)	All	2.00%

Horizon Year 2034 average weekday daily traffic volumes were developed by applying the growth rates reflected in **Table 10** to existing ADT volumes. This approach is based on the ideology that the approved growth rates developed as part of the corridor study, not only take into account the growth captured and reflected in the TDM but also the daily trips associated with the identified approved developments.

In addition to the developed 2034 ADT volumes, the existing 2013 traffic volumes were grown at the aforementioned growth rates to obtain 2034 peak hour traffic volumes. Based on existing trip distributions and the anticipated developments, it was determined that growth rates would only be applied to certain peak hour turning movements to reflect the anticipated future travel patterns within the study area.

The growth rates were only applied to the mainline Longhill Road volumes at the following study area intersections:

- Williamsburg West Drive/Lane Place Drive and Longhill Road
- Williamsburg Plantation and Longhill Road
- Buford Road and Longhill Road
- Lafayette Boulevard and Longhill Road
- Sheffield Road and Longhill Road
- Season's Trace and Longhill Road
- Lafayette High School Entrance Driveway and Longhill Road
- Lafayette High School Bus Loop Driveway/Christian Life Center Driveway and Longhill Road

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The growth rates shown in **Table 10** were applied to all approach movements at the following study area intersections:

- Route 199 WB Off/On-Ramp and Longhill Road
- Route 199 EB Off/On-Ramp and Longhill Road
- Ford's Colony Drive and Longhill Road
- Centerville Road and Longhill Road

The growth rates shown in **Table 10** were applied to only a portion of the movements at the following study area intersections:

- Olde Towne Road/Devon Road and Longhill Road – Only grew the movements associated with Longhill Road and Olde Towne Road
- Warhill Trail/Longhill Gate Road and Longhill Road – Only grew the movements associated with Longhill Road and Warhill Trail

To address side street traffic volume projections for select instances, it is proposed that an annualized growth rate of 0.5% be applied to existing side street turning movement volumes. A lower growth rate is proposed for the side streets (i.e., residential neighborhood site access driveways) because traffic associated with these approaches to Longhill Road are essentially built-out and any growth would only be very modest. For instance, Devon Road serves as the primary access driveway to the Windsor Forest residential development. The vast majority of the neighborhood is developed leaving little room for additional or significant growth.

Additionally, roadway facilities of this nature are not collectors or arterial streets providing an alternative route for area commuters or a functioning component of the County's transportation network. Background traffic growth (i.e., traffic in addition to that calculated for the development) on these sites is negligible.

Future Traffic Volume Calculation

To develop future traffic volume forecasts, Kimley-Horn proposes the use of the growth rates presented in **Table 8**, projected in a linear manner from the existing base year of 2013 out to the horizon year of 2034. The traditional linear methodology ideally addresses interim fluctuations in the economy or population despite changes (i.e., slowdowns, downturns, etc.) in economic growth or development. The linear growth projection methodology equation is shown below using an example 1.5% annual growth rate.

Equation 1:

Linear Annual Growth Rate Equation

$$(((0.015 * (2034-2013)) +1) * 10{,}000 = 13{,}150$$

$$13{,}150 - 10{,}000 = 3{,}150/10{,}000 = 0.315 / (2034-2013) = 0.015$$

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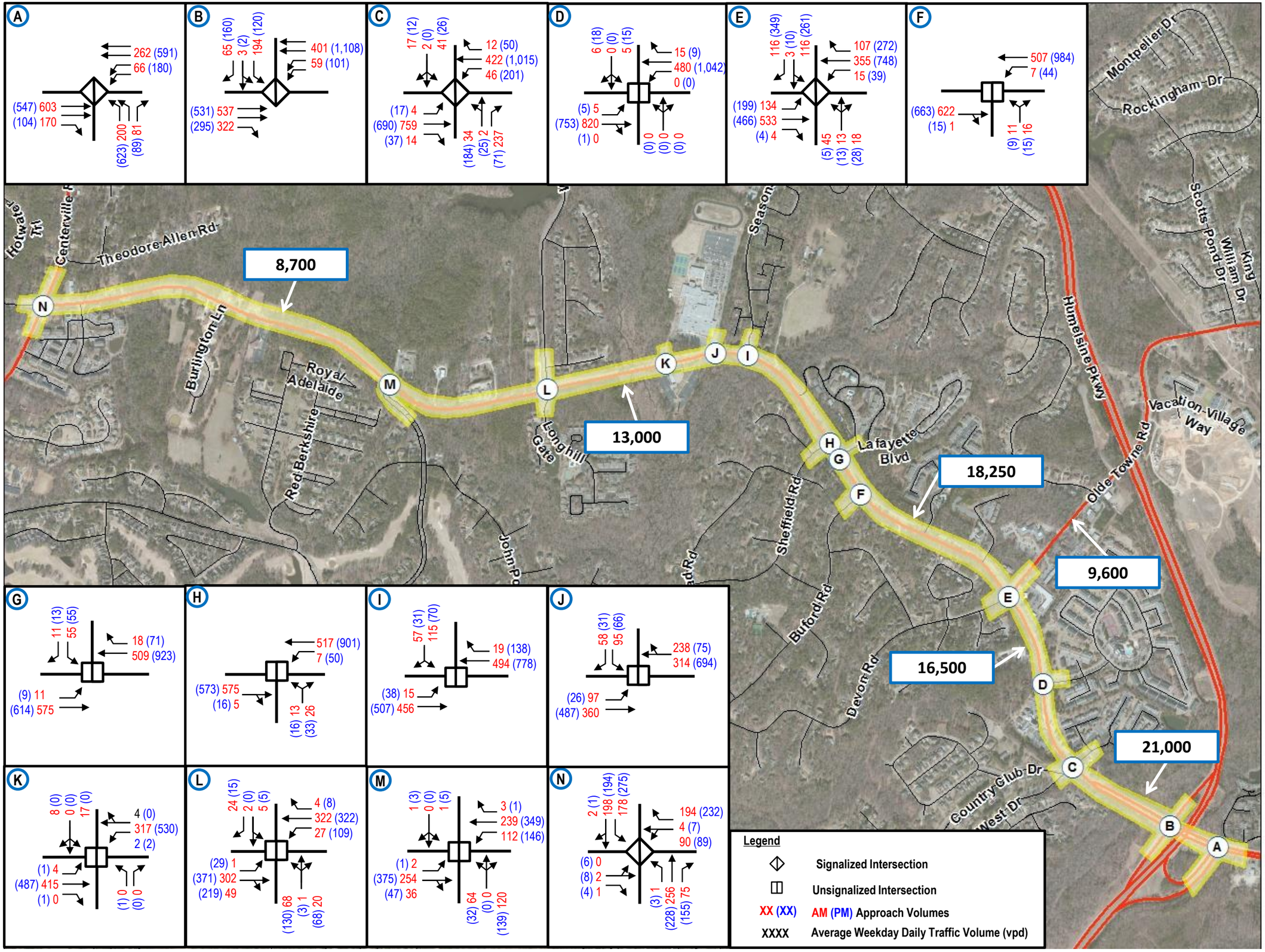
The linear equation approach reflects that traffic volumes are expected to increase approximately 31.5 percent over the defined 21 year period (2013 to 2034).

Based on the data findings and the proposed methodology, it is recommended that the growth rates presented in **Table 10** be used in conjunction with the linear calculation methodology (i.e., **Equation 1**) for the development of Longhill Road Corridor Study traffic volume projections. Existing 2013 AM and PM peak hour intersection turning movement volumes and average weekday daily traffic volumes are reflected in **Figure 2**. Horizon year 2034 traffic volume projections for AM and PM peak hour intersection turning movements and average weekday daily traffic volumes are reflected in **Figure 3.**

Figure 2: 2013 Existing Traffic Volumes



Study Intersections

Project Study Area

Primary Roads

Secondary Roads

0 360 720 1,440 Feet

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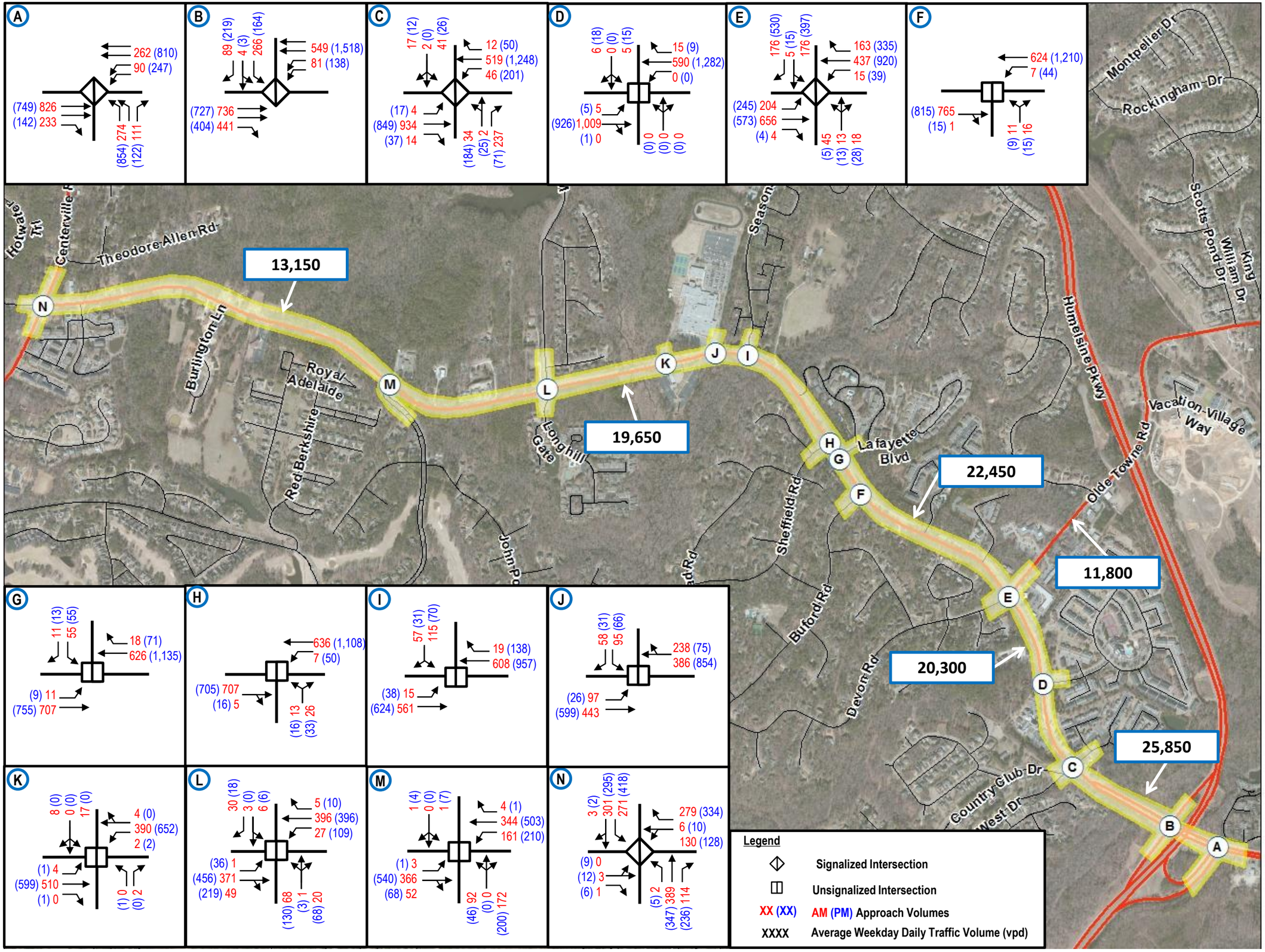
Coordinate System: NAD 1983 StatePlane Virginia South FIPS 450 Feet

Data Source: Source: Esri, DigitalGlobe,

Figure 3:
2034 Future Traffic Volume Projections



Study Intersections
Project Study Area
Primary Roads
Secondary Roads

Feet
0 360 720 1,440

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Coordinate System: NAD 1983 StatePlane Virginia South FIPS 450 Feet

Data Source: Source: Esri, DigitalGlobe,

VDOT Historical Traffic Volume Data

Route	Start	End	AADT				Year to Year Growth Rate			Average Growth Rate
			2009	2010	2011	2012	2009-2010	2010-2011	2011-2012	2009-2012
Route 612 Longhill Road	47-614 Centerville Rd	.24 ME 47-830	7000	7200	7200	7000	2.86%	0.00%	-2.78%	0.00%
	0.24 ME 47-830	47-615 Longhill Connector Rd	17000	17000	17000	16000	0.00%	0.00%	-5.88%	-2.00%

Route	Start	End	AADT				Year to Year Growth Rate			Average Growth Rate
			2001	2002	2003	2004	2001-2002	2002-2003	2003-2004	2001-2004
Route 612 Longhill Road	47-614	.3 M FRM 47-1570	5400	5500	5700	-	1.85%	3.64%	-	7.46%
	0.3 M FRM 47-1570	47-615	14000	15000	16000	-	7.14%	6.67%	-	
	47-614	.24 ME 47-830	-	-	-	6700	-	-	17.54%	2.33%
	.24 ME 47-830	47-615	-	-	-	15000	-	-	-6.25%	

Assumed that the start and end of the two segments were the same for 2001 and 2004

James City County

2040 Projected Households by Transportation Analysis Zone

N

0 11,500 23,000 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as such. The information displayed is a compilation of records, information,and data obtained from various sources, and James City County is not responsible for its accuracy or how current it may be.

Number of Households

- 1 - 740
- 741 - 1480
- 1481 - 2220
- 2221 - 2960
- 2961 - 3700
- Proffed School Site
- Elementary School
- Middle School
- High School
- School Administration
- 1320 TAZ Number
- 2 Number of Households

****Criteria for map was selected by Hampton Roads Transportation Planning Organization

Path: P:\PLANNING\LeanneR\School_Board\House Holds 2040.mxd 9/26/2013

Ford’s Colony Approved but Unbuilt Lots

8,750 4,375 0 Feet


Freedom Park Master Plan
Dog Park
Fenced Area, Parking
Jolly Pond Rd
4th Middle &
9th Elementary
School Site
Freedom Park
Bridge
Parking
Multi-Use Trail
Colby Swamp
Environmental Education Center
Interpretative Displays
Scenic Overlook, Nature Trails, Parking
James City County
Colonnade Pkwy
Hotwater Lake
Amphitheater
Existing
Parking
Lakefront House
Meeting Rooms, Visitor Services
Sand Beach, Boat Rentals, Fishing
Picnic Areas, Trails, Parking
Picnic Areas
Parking
1680-1730 Domicile and Outbuildings
Reconstruction of Period House
Interpretative Areas
Picnic Areas, Meadows, Trails
Ellipse Garden
Williamsburg Botanical Garden
1803 First Free Black Settlement
Three recreated homes with period furnishings
Picnic Area, Meadows, Trails, Parking
History Interpretative Center
Archaeological Displays
Visitor Services, Office, Meeting Room, Storage
1781 Revolutonary Battle of Spencer's Ordinary
Interpretative Areas
Picnic Areas, Meadows, Trails, Parking
Magnolia Ridge
Sport Courts
Basketball, Tennis, Volleyball
Playground, Picnic Areas, Meadows, Parking
Aquatic Facility
Playground, Parking
Woodruff Ln
Galloway Rd
Yarmouth Ln
Birdella Dr
Jeremiah Wallace Ln
John Jackson Dr
Fox Hill Rd
Fox Run
Centerville Rd
Longhill Station Rd
Allegheny Rd
Mill Dam Ct
Walker Dr
Forest Glen Dr
Williamson Dr
Hillgrove Ln
Improvements
Freedom Park
4th Middle & 9th Elem. School
Primary Service Area
Parcel Boundaries/Ownership
Water
Archaeological Test Sites
Streets
Edge of Pavement
Topography
Elevation in feet
0 - 15.0
15.1 - 25.0
25.1 - 40.0
40.1 - 55.0
551 - 75.0
75.1 - 95.0
95.1 - 110.0
0 375 750 1,500 Feet
N
Proposed Features
Streets
Mountain Bike
Trails
Hotwater Lake
Archaeological
Areas
Interpretative Bldg
Picnic Shelters
Freed Slave Homes
Pool
Prepared 9/14/07 by Julia Vea, JCC

3 A0.06 EXISTING STREET VIEW

4 A0.06 EXISTING INTERIOR DRIVE

SITE AREA USE BY PHASE

1 A0.06

detail FUTURE BUILDING AREA

KEY	NAME	AREA	Perimeter
1	EXISTING FACILITY	23,530 SF	1096 LF
2	EXISTING GARAGE	591 SF	97 LF
3	PHASE 1 EXPANSION	4,439 SF	352 LF
4	PHASE 2 EXPANSION	14,221 SF	600 LF
5	FUTURE ADMINISTRATION	1,785 SF	212 LF
6	FUTURE MAINTENANCE BUILDING	2,485 SF	199 LF
7	FUTURE PRESCHOOL EXPANSION	8,729 SF	460 LF
8	FUTURE FAMILY LIFE CENTER	6,911 SF	348 LF
Grand total: 8		62,693 SF	

FUTURE OCCUPANTS - CHURCH USE ONLY

Number	Name	Area	Occupant Load	SF per Occupant	Code Occupants	PARKING REQ'D	PHASE
334	NARTHEX	3,056 SF	Assembly Unconcentrated	15	204	41	2
E101	PRESCHOOL CLASSROOM	798 SF	Day Care	35	23	5	EXIST
E102	PRESCHOOL CLASSROOM	798 SF	Day Care	35	23	5	EXIST
E108	PRESCHOOL CLASSROOM	797 SF	Day Care	35	23	5	EXIST
E109	PRESCHOOL CLASSROOM	797 SF	Day Care	35	23	5	EXIST
E440	PRESCHOOL CLASSROOM	794 SF	Day Care	35	23	5	FUTURE
E442	PRESCHOOL CLASSROOM	788 SF	Day Care	35	23	5	FUTURE
E443	PRESCHOOL CLASSROOM	793 SF	Day Care	35	23	5	FUTURE
E444	PRESCHOOL CLASSROOM	788 SF	Day Care	35	23	5	FUTURE
E445	PRESCHOOL CLASSROOM	788 SF	Day Care	35	23	5	FUTURE
E446	PRESCHOOL CLASSROOM	798 SF	Day Care	35	23	5	FUTURE
F467	FAMILY LIFE CENTER	5,411 SF	Assembly Concentrated	7	773	155	FUTURE
M147	MEETING	298 SF	Assembly Unconcentrated	15	20	4	EXIST
M148	MEETING	317 SF	Assembly Unconcentrated	15	21	4	EXIST
M150	MEETING	306 SF	Assembly Unconcentrated	15	20	4	EXIST
M151	MEETING	304 SF	Assembly Unconcentrated	15	20	4	EXIST
M219	MEETING	2,287 SF	Assembly Concentrated	7	327	65	2
M220	MEETING	539 SF	Assembly Unconcentrated	15	36	7	2
M221	MEETING	539 SF	Assembly Unconcentrated	15	36	7	2
M344	MULTI-PURPOSE ROOM	4,655 SF	Assembly Unconcentrated	15	310	62	2
M352	WELCOME CENTER	300 SF	Business Areas	100	3	1	2
S329	SANCTUARY	7,678 SF	Assembly Fixed Seats	7	1097	219	2
S340	AUDIO - VISUAL	310 SF	Business Areas	100	3	1	2
					3100	620	

PARKING COUNT EXISTING
Count
234

PARKING COUNT PHASE 2
Count
557

PARKING COUNT FUTURE
Count
661

FUTURE OVERALL AREA

PERCENT	AREA	USE	AREA TYPE
13.8%	83,150 SF	LANDSCAPE - EXISTING	Exterior Area
19.3%	116,477 SF	LANDSCAPE - PHASE 2	Exterior Area
11.8%	71,198 SF	PAVEMENT - EXISTING	Exterior Area
26.8%	161,906 SF	PAVEMENT - PHASE 2	Exterior Area
4.7%	28,087 SF	PAVEMENT - PHASE FUTURE	Exterior Area
4.0%	24,122 SF	BUILDING - EXISTING	Gross Building Area
0.7%	4,439 SF	BUILDING - PHASE 1	Gross Building Area
2.4%	14,221 SF	BUILDING - PHASE 2	Gross Building Area
3.3%	19,911 SF	BUILDING - PHASE FUTURE	Gross Building Area
13.3%	80,279 SF	LANDSCAPE - EXISTING	Gross Building Area
100.0%	603,790 SF		

USE AND PHASE

- BUILDING - EXISTING
- BUILDING - PHASE 1
- BUILDING - PHASE 2
- BUILDING - PHASE FUTURE
- LANDSCAPE - EXISTING
- LANDSCAPE - PHASE 2
- PAVEMENT - EXISTING
- PAVEMENT - PHASE 2
- PAVEMENT - PHASE FUTURE

2 A0.06 STREET ELEVATION

DRAFT
510 MONROE DRIVE
WILLIAMSBURG, VA
23185

King of Glory Lutheran Church & School

connect grow live

KING OF GLORY PRELIMINARY EXPANSION PLAN

4897 Longhill Road
Williamsburg, VA 23108

FUTURE SITE
AREA PLAN

A0.06

06 MAY 2012

Warhill Sports Complex
2004 Master Plan

A- Baseball Complex
- 5 Baseball Fields, lighted
- 1 Multiuse Field for T-ball
- Parking- 260-400 Spaces
- Concession/Rest Room Building

B- Softball Complex
- 4 Large Softball/Baseball Fields
- Parking- 260-400 Spaces
- Concession/Rest Room Building

C- Soccer Complex
- 8 Soccer Fields, adjustable orientation
- Parking- 440 Spaces
- Concession/Rest Room Building

D- Stadium Complex
- Football, Soccer, Track and Field, lighted
- 600-1000 Stadium parking, some shared, some available in the utility corridor (N1)

E- Sports Field Complex
- 2 Multi-purpose Practice Fields
- 1 Lighted Competition Field
- Bleachers for 500
- Concession/Rest Room Building
- Parking - 160 Spaces

F- Multi-purpose Field Complex
- 8 Multi-purpose Fields, adjustable orientation, lighted
- Parking - 400 Spaces
- Concession/Rest Room Building

G1- Existing WISC Building
G2- Proposed Indoor Sports/Basketball Facility

H- Picnic Area
- 4 (or more) Picnic Shelters
- Loop Road with Parking on shoulders
- Access to 3 Ponds
- Picnic Benches
- Nature Trail around Pond
- Playground
- Volleyball and Basketball Courts
- Horseshoe Pits
- Multi Purpose Fields and Open Meadows
- Nature Center with Rest Rooms
- Fishing Platforms and Piers

I- Picnic Area
- Picnic Shelters
- Loop Road with Access to Pond
- Picnic Benches
- Parking- Shoulders on the Loop
- Nature Trail around Pond
- Playground
- Open Meadows
- Fishing Platforms and Piers

J1- Unprogrammed Open Space
J2- Unprogrammed Open Space
J3- Unprogrammed Open Space
J4- Unprogrammed Open Space
J5- Unprogrammed Open Space

K1- Multiuse Nature Trail, soft surface, 3.5 Miles around park perimeter with connections to Lafayette High School, Seasons Trace, and other neighborhoods
K2- Greenway access to Centerville Road

L- Paved Multiuse Trail in utility corridor

M- Paved Multiuse Trails around Soccer Complex- 1 mile and Baseball/Softball Complex- 1-mile

N1- Proposed joint development of shared parking between the stadium and future high school development on the remaining Warhill property within the Regional Utility Easement.
N2- Unprogrammed Open Space capable of supporting additional stadium parking.
N3- Dominion Power Substation

O- Two options for a secondary park access to Centerville Road for park expansion, stadium and future high school development. Vehicular control needed to prevent cut-through to Centerville Road, but open for secondary emergency access in accordance with the VDOT Dam Agreement.

P- Maintenance area- ¾ -acre for maintenance, storage, and park headquarters/visitor information

Q- BMX Park

Master Plan Summary
1996 Master Plan included A, B, C, D, K1, P.
G1 (WISC) was built in 2000
2004 Master Plan includes E, F, G2, H, I, J, K2, L, M, O, Q.

0 0.15 0.3 Miles

1 inch equals 800 feet

April 2004